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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
08/940,686	09/30/1997	THOMAS L. RITZDORF		5188

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EXAMINER

LEADER, WILLIAM T

ART UNIT	PAPER NUMBER
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1742

DATE MAILED: 05/06/2003

24

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

08/940,686

Applicant(s)

RITZDORF, THOMAS L.

Examiner

William T. Leader

Art Unit

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 January 2001.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14, 16, 17 and 19-24 is/are pending in the application.
- 4a) Of the above claim(s) 19-24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14, 16 and 17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. Receipt of the response filed on January 25, 2001, is acknowledged. Newly presented claims 19-24 have been presented. Previously presented claims 1-14, 16 and 17 are also pending.
2. Newly submitted claims 19-24 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: The newly presented claims are directed to apparatus and process in which first and second modes of operation are employed. In the first mode, a wafer contact portion of the contacts are electroplated with a metal in the absence of wafer contact, while in the second mode the surface of a wafer is electroplated with a metal. There is no requirement that the metal applied in the first mode is the same metal applied in the second mode. The originally presented claims are directed to apparatus and method in which a contact face of an electrode is covered with a layer formed of the same principal material as a layer that is plated onto the wafer. There is no requirement that the apparatus and method employ first and second modes of operation.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original

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presentation for prosecution on the merits. Accordingly, claims 19-24 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. The amendment to the claims and applicant's Remarks are deemed to be persuasive in overcoming the new matter issue.

5. Claims 1-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention for the reasons given in the previous office action and in view of the following comments.

6. Claims 1-8, 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yee et al (5,078,852) in view of the Lowenheim text *Electroplating* and Poris (5,723,028) for the reasons given in the previous office action and in view of the following comments.

7. Claims 9-12, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yee et al (5,078,852) in view of the Lowenheim text *Electroplating* and Poris (5,723,028) and further in view of Mayer et al (4,118,301) for the reasons given in the previous office action and in view of the following comments.

Response to Arguments

Applicant's Remarks have been carefully considered but are not deemed to be persuasive. At page 11 of the Remarks, applicant argues that tools used to electroplate a metal onto the surface of a wafer are routinely designed to electroplate a metal, the properties of which are predetermined and known in advance. This argument is not convincing because the same electroplating apparatus is generally capable of depositing a wide range of metals, not a single metal. For example, the electroplating bath provided in the tank of the apparatus of Vaccaro et al (5,804,053) may be any number of conventional electroplating baths capable of plating a variety of metals such as nickel, chromium, zinc, copper, tin, lead, iron, gold, silver, platinum, palladium, rhodium, aluminum, cadmium, cobalt and vanadium and a variety of alloys (column 6, lines 5-13). The electroplating apparatus of Lashmore et al is capable of plating from a plating bath which contains any metal ion capable of reduction to its zero oxidation state such as

copper silver gold, iron, cobalt, nickel and aluminum (column 9, lines 55-63). The electroplating apparatus of applicant would similarly be capable of electroplating a wide variety of metals and alloys.

At page 12 of the Remarks, applicant argues that there is no nexus between electroplating a material on a semiconductor wafer and pre-conditioning a contact used to electroplate the material and that it is well recognized that a material may have beneficial characteristics in one application while having detrimental characteristics in another. The argument is not convincing. The application of interest in the apparatus and process of the instant claims is electroplating onto a semiconductor wafer. As indicated in the previous office Poris discloses that it is known to electroplate a metal such as copper, silver or gold onto a semiconductor wafer. This is the same application recited in applicant's claims. The Lowenheim text discloses that it is known to electroplate gold onto electrical devices because of its good electrical contact properties, corrosion resistance, and because it will not "poison" semiconductor materials. Thus, Lowenheim teaches the electrodeposition of gold as a coating for enhanced electrical contact properties and that its use is beneficial in coating semiconductors, the same application recited in the instant claims. Thus, the references provide clear motivation for the modification of the apparatus and process of Yee et al to arrive at the apparatus and process claimed by applicant.

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The Simpson et al (6,174,425) patent is directed to a method and apparatus for electroplating a semiconductor wafer. The apparatus includes structures 36 which include clamps 362 which hold the wafer and serve as electrical contacts to supply electroplating current. These are made of the same material as what is being plated onto the wafer to reduce the likelihood of contamination of the plating solution. If a copper material is being plated, the structures 3 are made of copper. See column 3, lines 39-45.

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William T. Leader whose telephone number is 703-308-2530. The examiner can normally be reached on Mondays-Thursdays and alternate Fridays, 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King, can be reached on 703-308-1146. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

WL
William Leader
April 30, 2003

ROY KING
SUPERVISORY PATENT EXAMINER
TECHNICAL CENTER 1700